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LOGISTICS AND THE COMBAT POWER EQUATION

- CUTTING ACROSS THE SPECTRUM OF WARFARE

By

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A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements for the Joint Military Operations Department.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract of

LOGISTICS AND THE COMBAT POWER EQUATION

- CUTTING ACROSS THE SPECTRUM OF ~~CONFLICT~~ WARFARE

COMBAT POWER - The application of overwhelming force applied at the right time in the right place which has led to the demise of powerful armies and nations throughout history. Arguably, since the birth of the United States military, the institutional norm has viewed combat power as the application of the "Trigger Puller" to close with and destroy the enemy, e. g., bombs on target and infantry in the fighting hole. However, real combat power is comprised of more than the "Trigger Puller". True combat power, the type which led to success in Desert Storm, is composed not only of the "Trigger Puller", but the "sustainment or logistics" which provides the means to initiate, gain, and maintain power! An armed force can not execute its mission without both factors - these factors make up the Combat Power Equation. Success in war and the survival of a nation in an insecure world are partially dependent on military and civilian leadership's appreciation and proper application of the balanced Combat Power Equation. Its viability is appropriate across the spectrum or levels of warfare, and it requires recognition from the tactical to the strategic leader. Appreciation and recognition of the necessity for the cohesive, parallel design and development of both factors are essential to successful conflict resolution. As the military awakens to the importance of the logistics factor, it is imperative we institutionalize its rightful place in the Art of War. As demonstrated through history, failure to recognize the absolute importance of these interdependent factors can lead to failure and defeat!

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CHAPTER I

INTRODUCTION

Combat Power - the application of overwhelming force applied at the right time in the right place which has led to the defeat of numerous adversaries since the advent of armed conflict! The power which enabled Alexander the Great, Napoleon, U.S. Grant, and Norman Schwarkopf to be successful in war. It has been, is, and will continue to be an essential ingredient in successful conflict resolution or victory.

But, what is combat power? Is it bombs on target, riflemen at the front with superior firepower, or smart munitions? Is it a superb strategy implemented through the operational art resulting in proper tactical maneuvers and actions? Unfortunately, there are still those in the armed forces who would answer "YES" to all of the above and firmly believe they had aptly described combat power! However, true combat power is comprised of more than the proverbial "Trigger Puller", e. g., artillery piece, bomb dropping aircraft, or great tactics and strategy. True combat power is comprised of the "Trigger Puller" and the "Logistics or Sustainment" which provides the means of initial and continued power! An armed force cannot execute its mission without both parts of the whole - these parts or factors make up the Combat Power Equation!

History is replete with examples where failure in battle or war was due in large measure to a tactical commander, an operational commander, or, worse yet, a country's leadership not insuring the Combat Power Equation was properly addressed and applied prior to and during the execution of an armed conflict.

- Napoleon, renowned as an innovative tactician and master of the operational art, built one of the most powerful armies in history and was thought to be virtually unstoppable. However, during the Peninsular Wars in his quest to conquer Spain, his powerful army ground to a halt and was ultimately defeated by less proficient and capable forces when his logistics lifeline to France was interdicted and cut. France could produce the goods, but it could not get what he needed, when he needed it, where he needed it! In the end, it spelled defeat and began the erosion of his awe and power.

- Hitler, the leader of Nazi Germany, built a powerful war machine grounded in tactical and operational art, thought to be second to none! He seized the initiative and rapidly pushed the allied powers into a corner almost changing the modern world order. Yet, Hitler and his general staff failed to see and grasp the importance of strategic industrialization to provide the other factor of the Combat Power Equation which could sustain his expertly trained "Trigger Pullers". It was a failure which the allies were able to exploit and use to their

advantage to help win the war.

- More recently, the Korean War, the proper application of the Combat Power Equation was a deciding factor. At the beginning of the war, the United States, still standing down from World War II, was literally overwhelmed by lack of ammunition, repair parts, necessary end items, and available manpower. Task Force Smith, comprised mainly of 24th Infantry Division elements, was deployed to Korea with inadequate equipment, wrong ammunition for weapons, and improper weather protective clothing. The results were disastrous as American servicemen, without the proper means and resources, were forced back into the Pusan Perimeter. It was not only "Trigger Pullers" deftly applied at Inchon that broke the stalemate, but the provision of logistics throughout the levels of warfare. This provided the other half of the Combat Power Equation and enabled our forces to break the North Korean choke hold and drive north.

As history clearly demonstrates, the Combat Power Equation cuts across and through the spectrum of warfare with ever increasing importance and potential detrimental consequences as it works it way through each higher level. Adequate appreciation and, foremost, the cohesive and parallel design, development, and application of both factors of the Combat Power Equation are essential to successful conflict resolution. Conversely, failure to recognize their importance and to plan

for both factors will lead to failure and defeat. While ample military literature and almost all military education emphasizes the "Trigger Puller" factor of the equation, the logistics factor has often been ignored or paid mumbling lip service. Arguably, this has led to a military culture which tends to look at logistics as an aside and a discipline which should be handled separately, once the plan has been formulated, by the pencil necked geek "in the rear with the gear". Yet, if we believe history and realize that failure to recognize and apply both factors of this Equation will spell defeat, it is important to revisit the logistics factor with emphasis on its imperative role in favorable conflict resolution.

The purpose of this paper is to investigate the logistics factor in the Combat Power Equation and review its applicability and importance across the levels of warfare, i. e., tactical, operational, and strategic. To do this, the author will first attempt to define logistics and discuss, in layman's terms, the characteristics of its planning and execution. Once a common framework is established, the paper will look at how logistics applies at each warfare level and the potential consequences of failure if it is improperly planned for or ignored. The final portion will briefly discuss the historical perception of neglect for logistics, the current environment in the U. S. military, and recommend some "fixes" to insure logistics is placed in its proper role in the Combat

Power Equation and/or the Art of War!

The author believes that almost as important as what this paper is about, is what this paper is not about in order to preclude alienating readers. This paper is not an attempt, on the part of a frustrated logistician, to imply logistics is the most important element on the battlefield. It will not argue or attempt to portray logistics as the linchpin to success. The author understands the importance of strategy, operations, and tactics in insuring success at war - we must have all these elements, integrated in a cohesive manner, to succeed! It is, however, an attempt to put logistics in its proper place in the Art of War. Unfortunately, a case could be made, as stated in the thesis, that an all too common misconception exists which gives preeminence to the "Trigger Puller" factor of the Combat Power Equation in successful conflict resolution. Regrettably, this misconception takes on greater consequences as a military person develops and matures. The military education system does very little to improve this situation as we train hard to make strategic thinkers. The point is strategic thinkers down through the tactical commander at the small unit level must appreciate and plan for logistics if success is to be achieved.

CHAPTER II

LOGISTICS & LOGISTIC PLANNING

Logistics is a tough subject to come to grips with and an even tougher capability to develop, manage, and apply. This difficulty and complexity increase as contemplated actions or plans for conflict move about and through the spectrum of warfare. Logistics is multi-faceted, intricate, complex, and encompasses numerous issues and areas which are critical to success, but are often considered dull and not glamorous. One only has to look at history to see past armed forces and nations have had a difficult time figuring out what logistics is and how to define it. In fact, as late as 1941, American military commanders were not sure about logistics. For example, consider the statement by Admiral King during World War II, "I don't know what the hell this "logistics" is that Marshall is always talking about, but I sure want some of it!" (1) To establish a common foundation on which to build an understanding, the author will look at some definitions and try to arrive at a consensus.

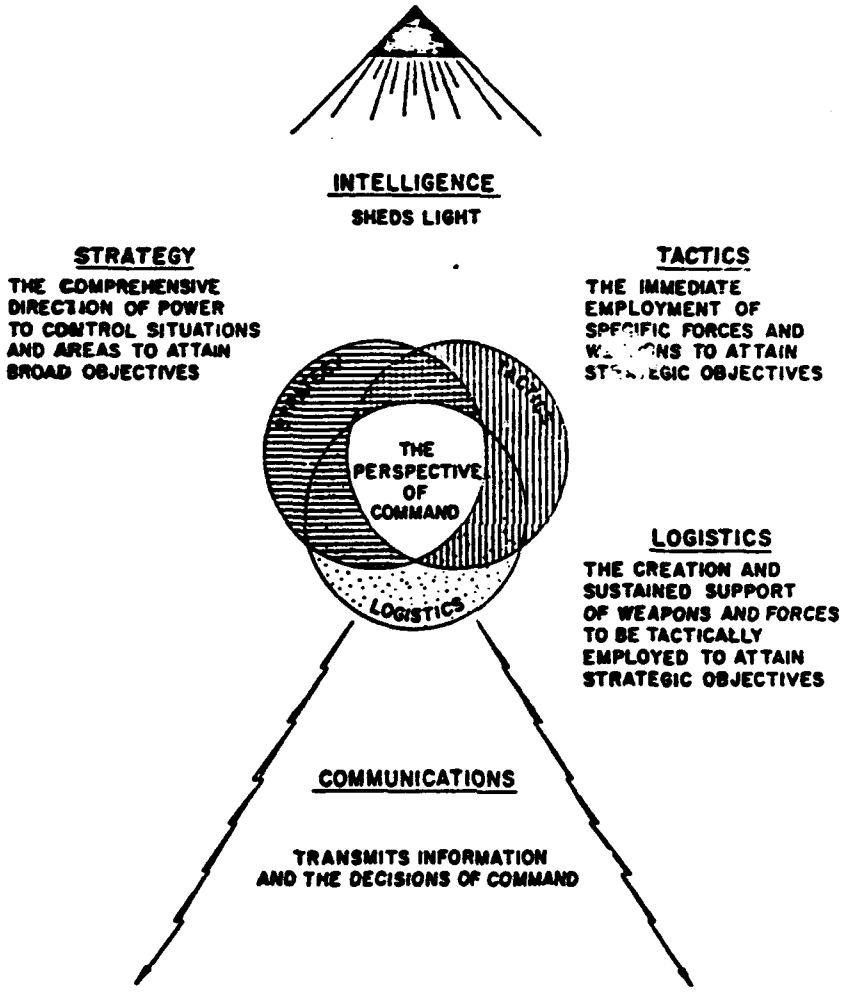
Joint Chiefs of Staff (JCS) Publication (PUB) 1-02 defines Logistics as "The science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, those aspects of military operations which deal with: (A) Design, development, acquisition, storage, movement,

distribution, maintenance, evacuation, and disposition of material; (B) Movement, evacuation, and hospitalization of personnel; (C) Acquisition or construction, maintenance, operation, and disposition of facilities; and (D) Acquisition or furnishing of services." (2) S. L. Falk, in his introduction to Pure Logistics. The Science of War Preparation (a book authored by George Thorpe), makes two observations appropriate to this discussion as follows: "The word logistics has been in use in the United States barely more than a century. For most of this period, members of the profession of arms, as well as military historians and theorists, have had difficulty in agreeing on its precise definition. Even today, the meaning of logistics is some what inexact - despite its frequent appearance in official and unofficial military dictionaries and its lengthy definition in service and joint regulations." (3) He goes on to state his definition of logistics as "Logistics is essentially moving, supplying, and maintaining military forces. It is basic to the ability of armies, fleets, and air forces to operate - indeed, to exist. It involves men and material, transportation, quarters and depots, communications, evacuation and hospitalization, personnel replacement, service, and administration. In its broader sense, it has been called the economics of warfare, including industrial mobilization, research and development, funding, procurement, recruitment and training, testing, and, in effect, practically everything related to military activities besides strategy and tactics. Logistics, in short,

in the words of one irreverent World War II supply officer, is "the stuff that if you don't have enough of, the war will not be won as soon as." (4) George Thorpe would not attempt a definition, but preferred to look at logistics as a concept somewhat akin to Clausewitz's strategy and tactics. His basic premise was if "tactics is the theory of the use of military force in combat" (5), and "strategy is the theory of the use of combats for the object of the war" (6), then "logistics provides the means to link the two together and accomplish the objectives". (7) Henry Eccles, the renowned U. S. Navy expert on logistics, also would not attempt to provide a single definition for logistics, but preferred to look at logistics as a concept. He stated in his book Military Concepts and Philosophy, "This book makes no effort to give a single, precise definition of logistics, but instead emphasizes the various descriptions and concepts of this term. Each description, each specific definition, presupposes a specific point of view. However, since logistics permeates the entire military system, it can be understood as a system only by viewing it from various perspectives. The perspective of command is the most important point of view, for high command, be it military or civilian, or be it a subtle shifting combination of the two, has the responsibility to create, support, and to employ combat forces." (8) Eccles expressed this concept by using the following illustration to depict this synergistic relationship so vital to the Art of War.

THE FUNDAMENTAL RELATIONS FROM THE PERSPECTIVE OF COMMAND (9)

THE FUNDAMENTAL RELATIONS
FROM THE PERSPECTIVE OF COMMAND



THE DECISIONS OF COMMAND IN ALL COMBAT SITUATIONS ARE A BLEND OF STRATEGY, TACTICS AND LOGISTICS.

It quickly becomes apparent to the reader that there really are a multitude of official and unofficial definitions of logistics, and none, quite frankly, sound very glamorous or inspiring. However, all of these definitions or concepts are appropriate and identify logistics as a crucial factor in the Combat Power Equation. For the purpose of this paper, the author will use a simplified, easy to comprehend definition which encapsulates the others by presenting logistics as "the unseen hand which determines success or failure on the battlefield" (10), with it, you can win; without it, you lose!

LOGISTIC PLANNING

If success requires this thing or concept called logistics, it is imperative a commander and his staff or the Department of Defense (DOD) official and his staff be able to plan for and execute it. As in the tactical, operational, and strategic realm of warfare there are principles or characteristics which should be considered and applied when working with the application of the "Trigger Puller" factor, the same is true when working with the logistics factor. The principles of logistics and the accompanying characteristics of logistic planning are appropriate across the levels of warfare. While the arena in which each higher level takes place changes as does the complexity, gravity, and scope of the situation, the principles and characteristics remain germane.

Military planning and execution demands coordinated and integrated interface between all parties representing the multiple disciplines existent in today's military. The characteristics of logistics planning,

- CONCURRENT
- DETAILED
- PARALLEL
- INTEGRATED
- HONEST

if followed, provide for this coordination link between the commander and his staff, the operator and the logistician, and the DOD operative and the civilian agency. While the concept of operations or national strategy will drive the plan (as it well should), it must have a concept of logistics support which is executable if the operation/strategy is to succeed. The concept of operations/strategy must be based on solid estimates made by trained, experienced experts in the various military disciplines. This requires logistics interface and information beginning during the earliest part of the planning process and continuing throughout the development and execution phases. As the plan is refined, changed, or executed, logistics must continue to be part and parcel of the process. Logistics planners must plan in their area of expertise with the goal to support the mission. There must be honest assessments when the logistics means may not be available to achieve success, and the willingness to take certain calculated risks to achieve success when necessary. These characteristics of planning must

be demanded by the commander and actively exercised by all the planners irrespective of discipline represented. It does not matter whether it is a military operation to achieve a singular battlefield objective or the introduction of a new weapon system at the national (or strategic) level, adherence and practice of these planning characteristics will help to insure success.

When conducting logistic planning, certain time tested and proven principles must be kept in the forefront and applied throughout the process. These principles describe what logistics should be and how it should be executed throughout the spectrum or levels of conflict. These principles are:

- FLEXIBILITY
- RESPONSIVENESS
- SIMPLICITY
- SURVIVABILITY
- ATTAINABILITY
- ECONOMY
- SUSTAINABILITY
- INNOVATION / IMAGINATION
- ADAPTIBILITY

Most military manuals on logistics list all or part of these principles and provide ample explanation of each. The author believes the single word descriptive provides sufficient explanation to stand on their own. However, the most important consideration, and the overriding factor, is to recognize these

principles do not change regardless of the level of warfare. They are as appropriate and imperative in the offices of the Pentagon as they are in the combat operations tent in Saudi Arabia!

CHAPTER III

LOGISTICS & SPECTRUM OF CONFLICT

If the reader accepts the information presented thus far on logistics as fact and recognizes logistics as integral to successful conflict resolution, then reason demands logistics be considered a factor in the Combat Power Equation. To reinforce this argument and support its concept, it is necessary to look at logistics as it applies across the spectrum or levels of warfare.

TACTICAL LEVEL

The tactical level of warfare is officially defined as, "The level of war at which battles and engagements are planned and executed to accomplish military objectives assigned to tactical units or task forces. Activities at this level focus on the ordered arrangement and maneuver of combat elements in relation to each other and to the enemy to achieve combat objectives." (11) In layman's terms, this is the level where the "rubber meets the road". The level where the eighteen year old combatant is up close and personal trying to make "the other dumb bastard die for his country." (12) The level where failure to plan and execute logistics (or combat service support) spells, not only, defeat, but possible death. It is the here and now, where timeframes are condensed, and either

one has properly planned and prepared utilizing sound principles and reasoning, or is doomed to imminent defeat. It is imperative that as operation planning is taking place the logistician is involved as a viable part of the process. The characteristics of planning and principles of logistics demand consideration if defeat and/or death is to be avoided. Tactical units cannot plan actions in a vacuum expecting logistics and its resources to magically catch up when called. Unit commanders must have an appreciation for the importance of logistics and insure logistics planners and support group representatives are included throughout the planning cycle and kept abreast of changing events. In turn, logistics representatives must aggressively stay astride the situation and anticipate potential requirements. Logisticians must honestly present the capabilities, limitations, and potential logistics consequences to the unit commanders. Additionally, it is absolutely imperative the logistician consider and apply the principles of logistics as they develop and execute their concept of support. The logistician must be able to develop logistics plans which compliment and support the operation and have the knowledge to articulate their implementation. This expertise is required from the lowest through the highest level of tactical unit. Failure to do this produces a negative consequence snowballing effect on all units both above and below. Disregard for logistics will lead to improper utilization of potentially scarce assets because of improper prioritization and allocation. It will also lead to erroneous

representation of the logistics situation to the next higher command which equates to an inaccurate logistics picture and the potential for catastrophic mismanagement of resources. The consequences of these mistakes gain momentum both up and down the chain of command throughout the levels of war adding additional "fog and friction" to an already complex situation.

Arguably, the tactical level of warfare is the one level where the realism of death can come quickly if the Art of War has not included the proper appreciation and application of both factors of the Combat Power Equation. The eighteen year old combatant in the foxhole could care less about JCS definitions, Clausewitzian theory, or strategic objectives when he stares across the FEBA/FLOT at his enemy. His objective is survival and logistics plays a primary role in its achievement. It is the responsibility of each commander and each planner at every tactical level to insure the individual combatant is provided with both the ways and means to accomplish his objective. Fore, at the tactical level, if the eighteen old combatant is successful in achieving his objectives, the nation he represents will be well on its way to achieving theirs!

OPERATIONAL LEVEL

JCS PUB 1-02 defines the operational level of warfare as "The level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic

objectives within theaters or areas of operations. Activities at this level link tactics and strategy by establishing operational objectives needed to accomplish the strategic objectives, sequencing events to achieve the operational objectives, initiating actions,and applying resources to bring about and sustain these events. These activities imply a broader dimension of time or space than do tactics; they ensure the logistic and administrative support of tactical forces, and provide the means by which tactical successes are exploited to achieve strategic objectives." (13) This definition explicitly implies the broader implications and the potential for devastating consequences if there is a failure to properly apply the logistics factor of the Combat Power Equation. It also indicates the inherently more difficult and complex situation which must be dealt with by commanders and staffs to properly plan for and apply both factors of the equation. Yet, while the situation is broader, and therefore more intricate and complex, the principles of logistics and characteristics of logistic planning are unchanged and still applicable. Logistics must continue to be flexible, responsive, sustainable, survivable, attainable, et al. Planning continues to require interface and coordination between the operation and logistic planners encompassing all the agencies and components being supported or supporting. It demands this planning be conducted in a concurrent, parallel, and detailed manner. Arguably, it is still focused on the eighteen year old combatant out in the fighting hole closing with and destroying

the enemy. The difference is there are a lot more eighteen year olds spread out over a longer period of time covering a lot more territory. Therefore, the consequences of failure take on more detrimental and even greater dimensions. Operations planning requires all planners to think and operate on a higher plane and be cognizant in military matters across the spectrum of warfare and service capabilities. This does not mean commanders and staffs must be intimately familiar with every military area and their respective details. However, it does require they have an appreciation of each respective disciplines' necessity in order to provide the synergism to meld the myriad of factors together during the planning process and be able to adjust during execution. As at the tactical level of warfare failure to consider and appreciate the logistic factor pushes friction up the levels of warfare, the same occurs at the operational level, but with significantly more damaging and catastrophic effects which go both up to the strategic and down to the tactical levels. The logisticians must look beyond the short term and design innovative and imaginative methods to employ scarce resources and insure their sourcing and allocation. Logisticians must be aggressive and recalcitrant enough to provide honest appraisals of the situation and in forecasting potential consequences. The means (or logistics) must be provided in the short term and planned for in the long term if the operational level is to be executed successfully. The operator, in turn, must have an even greater appreciation of logistics importance and the need to plan for

its provision and availability.

The impact of improper logistics at this level has far reaching effects on both the tactical and strategic level of warfare. In fact, this is the one level where failure can and will modify the ability of the other two levels to plan and execute. The results at the tactical level, as previously mentioned, spell defeat on the battle field and possible death for our fighting men. At the operational level, the results of failure spell potential death to the eighteen year old combatant, waste of scarce resources, and possible failure to achieve strategic objectives leading to conflict resolution on unfavorable terms.

STRATEGIC LEVEL

Logistics at the strategic level of war is the most difficult and complex. It has the greatest consequences with impact which cuts across the entire repertoire of the instruments of national power, i. e., political, diplomatic, economic, and security. JCS PUB 1-02 defines the strategic level of warfare as "The level of war at which a nation or group of nations determines national or alliance security objectives and develops and uses national resources to accomplish those objectives. Activities at this level establish national and alliance military objectives; sequence initiatives; define limits and assess risks for use of military and other

instruments of power; develop global or theater war plans to achieve those objectives; and provide armed forces and other capabilities in accordance with the strategic plan." (14) Regardless of the complexities and intricacies of logistics at the strategic level, the characteristics of planning and principles of logistics do not change. However, at this level, the commander, civilian defense executive, and their staffs are not only concerned with the eighteen year old combatant and his ability to execute today and tomorrow, but with the survival and strengthening of national political, diplomatic, security, and economic power. Successful conflict resolution requires effective application of all the instruments of national power. Inability to produce the means (or logistics) required to execute the tactics and operations to support a strategy to achieve national objectives leads to crippled economic, political, diplomatic, and military power thus potential defeat. Logistics at this level requires even greater vision because shortfalls and limitations cannot be quickly remedied by a shift in priorities and reallocation of resources. This level is the source for resources and the capability must exist or be planned for to insure limitations do not become "show stoppers". These "stoppers" can cut across the instruments of a nation's power. As resources are garnered and expended to shore up shortfalls or to make up for deficiencies in planning, other efforts also necessary for wartime success can suffer due to a reduction in their usable resources. Additionally, this can reduce economic power and make a nation dependent on other

sources to remedy the shortfall. The results can be catastrophic particularly if the conflict is a unilateral action and not widely supported by friends and allies. The risk becomes economic or political blackmail at the international level. This, in turn, increases the risk of failure and curtails options at all levels of warfare. For example, failure to plan and arrange for a surge capacity in the defense industrial base or strategic mobility assets impacts the operational level logistics by limiting assets needed to execute a campaign. It forces the operational level commanders and planners to make adjustments which can increase the risk of failure. This impact continues through the "trickle down" effect to the tactical level where planners and executors must also make adjustments to reduce the risk of failure and the potential death of the eighteen year old combatant. Bottom line, failures at the strategic level have consequences which reach down to the tactical level and the combatant in the fighting hole, i. e., does he have the means to fight and live for his country!

Unquestionably, logistics at the strategic level is the most important and the most difficult. It is the source for logistics at the other two levels and impacts the nation all the way down to the eighteen year old combatant. Proper recognition of logistics must begin at this level and be reinforced throughout the other levels with clarity and uncompromised emphasis. Failure to recognize this will lead to

the demise of a nation either through unpreparedness for armed conflict or degradation of the political, diplomatic, and economic might of a nation.

CHAPTER IV

PERSPECTIVE

Regardless of the level of warfare, it is painfully obvious this thing called logistics is a must if conflict resolution efforts are to be successful. It must be learned, trained, and reinforced as a discipline throughout the military hierarchy in both the uniformed and civilian sectors. It must be put in its proper place and receive the same emphasis as its counterparts - tactics, operations, and strategy. Unfortunately, this has not been the case throughout most of the history of the United States Armed Forces. Arguably, this imbalance has its roots in the organizational and socialization processes of the military establishment. Consider the statement of James A. Huston, author of The Sinews of War, "Everybody likes to talk about and analyze strategy. Some "mystic" quality about strategy and strategic planning and strategic decisions seems to arouse spirits of all to a sense of intellectual contest. But World War II turned out to be less a game of strategy than of logistics. There were certain obvious moves; there were certain choices, but more often than not the choice hinged on the logistical factors and implications rather than upon some abstract gamesmanship." (15) Henry Eccles makes this argument even better in his book Military Concepts and Philosophy written in 1964. He states "Frequently, one encounters a document that categorizes two supposedly exclusive classes of

activity, one being military, the other being logistics. Similarly, military literature, military conversation, and military staff organization generally use the term "operations" as something that excludes logistics. This terminology reflects ignorance or neglect of the relations that exist between the military arts of strategy, logistics, and tactics. It ignores the reality that military operations, while they be primarily tactical or primarily logistics, are always a blend of tactical and logistical action." (16) At the risk of sounding treasonous, perhaps some fault could be placed on Carl Von Clausewitz (or how we tend to interpret his writings) who in his writings On War tended to separate and largely ignore the logistical art. He states "The Art of War is therefore, in its proper sense, the art of making use of the given means in fighting, and we can not give it a better name than the "Conduct of War". On the other hand, in a wider sense, all activities which have their existence on account of war (therefore the whole creation of troops - that is, levying them, arming, equipping, and exercising them) belong to the Art of War. To make a sound theory it is most essential to separate these two activities." (17) Clausewitz, a primary source for military knowledge could be inferred to have downplayed the importance of logistics (though the author would disagree with this premise). It would certainly appear that at least initially in our military organization, we took him at his word and separated the activities.

While Eccles' statement some two hundred years later tends to verify Clausewitz's statement, there now appears to be some movement away from this position in our military. Recognition of logistics as essential to effective and successful military operations is gaining momentum and creditability in today's military. Whether it is being forced due to a recognition of reduced national resources to support the military establishment or is a genuine awakening of an appreciation for the logistical art on parity with the much touted operational art is unknown and, frankly, unimportant. What is important, however, is the renewed interest which can be transformed into concrete reforms or adjustments in the manner in which we raise and train our military. It is imperative we grasp the impetus and move forward to insure logistic concerns do not become only a "flash in the pan". Military officers, in particular, need to be educated in the value and necessity of logistics in the same manner in which we train tactics and operations. This is not to imply the education system should work to make all officers school trained logisticians. However, it must make them aware of logistics importance and its place in the Combat Power Equation. This process should begin during the earliest phases of training on the military art and continue throughout the officer's career. It should be a part of both the formal and informal education system and incorporated to whatever extent practical into all war games, CPXs, and training exercises.

In order to bring about these changes, it will require effort by the logistics community and recognition by the other military disciplines of the logistics factor and its importance as a learned trait. Initially, perhaps the most important role will be at the military school house where curriculum changes can be made to insure logistics or, more importantly, the consequences of failure to consider and appreciate logistics is demonstrated to the attending officers. Yet, school book learning is normally only effective when it is reinforced through the "School of Hard Knocks" or experience and practical application. This demands both the logistician and the operator work in concert to bring logistics play into the realm of war games and other exercises. Here again, it is important (and certainly advocated by the author) logistics not impede the desired effect of the exercise, but it be incorporated in a manner to compliment the desired results and lessons to be learned.

Bottom line, if we are successful in training the trainers, the trickle down effect will work in our favor and help to break any remaining organizational resistance to logistics. This will lead to a greater appreciation of the logistics factor in the Combat Power Equation and establish logistics in its rightful place in the Art of War.

CHAPTER V

CONCLUSION

Logistics - "the unseen hand that determines success or failure on the battlefield" (18), but above all, a critical element in our nation's ability to maintain creditable instruments of national power - is an essential ingredient to successful conflict resolution. It is a primary factor in the Combat Power Equation which must be put in its proper place in the realm of military subjects and disciplines. Its validity as a crucial element of war is time tested and history proven. It is applicable throughout all levels of command and warfare. It is not the "other thing" done by the "geek in the rear with the gear", but a critical factor which demands equal footing with the "Trigger Puller" as a nation looks to apply its combat power to achieve objectives. It is essential to the eighteen year old combatant out front closing with and destroying the enemy; and it is essential to the Secretary of Defense as he approves and pushes new systems and programs for the security of the nation. Its importance demands the U. S. military establishment continue to initiate changes within its hierarchy to institutionalize the logistics factor to insure future leaders are properly prepared to plan and execute a balanced Combat Power Equation. Future success in conflict, as in the past, will be dependent on our ability as a fighting force and a nation to exercise all the Arts of War - strategy, operations, tactics, and logistics!

END NOTES

(1) E. J. King, quoted in D. J. Speck "Operational Level Command and Logistical Art". Unpublished Research Paper, Naval War College, Newport, RI.

(2) U. S. Joint Chiefs of Staff, DOD Dictionary of Military and Associated Terms, JCS Pub 1-02, (Washington: 1989).

(3) S. L. Falk, Introduction to G. C. Thorpe, Pure Logistics: The Science of War Preparation, (Washington: 1986).

(4) Ibid.

(5) G. C. Thorpe, Pure Logistics: The Science of War Preparation, (Washington: 1986)

(6) Ibid.

(7) Ibid.

(8) H. E. Eccles, Military Concepts and Philosophy, (New Jersey: 1965).

(9) Ibid.

(10) M. P. C. Carns, Lt Gen, USAF. Statement made to author during discussion in 1989 at HDQS., Pacific Command.

(11) JCS Pub 1-02.

(12) Statement attributed to Gen. G. Patton as depicted during movie "PATTON".

(13) JCS Pub 1-02.

(14) Ibid.

(15) J. A. Huston, The Sinews of War: Army Logistics 1775-1953, (Washington: 1966).

(16) Military Concepts and Philosophy.

(17) C. Von Clausewitz, On War, (New Jersey: 1989).

(18) Carns.

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